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National Field Research Center, Inc, Iowa City, IA

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NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT PHASE III

SOLID WASTE PROGRAMS

1979

Conducted by:
NATIONAL FIELD RESEARCH CENTER, INC.

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16. ABSTRACT

This directory, one of 18 volumes in Phase III of the National Environmental/Energy Workforce Assessment, provides information on post-secondary environmental education programs in the United States. Structured around information requests mailed to post-secondary education institutions, the directory provides the name and address of each institution listed, a contact person at each institution, the academic program title, and the degree offered at the institution (2-year, 4-year, etc.).

Phase III includes twelve such directories of post-secondary programs: One each for air, noise, pesticides & toxicology, potable water, wastewater, radiation, solid waste, and energy; one for combined water/wastewater programs; and a composite volume on each of the three areas of environmental engineering/technology, environmental science/health, and environmental studies. In addition, Phase III includes the following six volumes: Environmental Employment in Public Service Jobs Programs -- An Analysis of CETA Title VI FY 78 Projects; Salaries & Attendant Problems of Public Sector Environmental Employment; The Role of CETA in Direct Training and Employment; Private Sector Training Activities; Problems in Environmental Education & Training; and the Workforce Planning Bibliography.

Phase I of the Assessment evaluated workforce needs for pollution control and abatement in the U.S. during 1976-81. Phase II gathered data on training and educational programs in the post-secondary environmental education field as of 1978.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS		b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Solid Waste	Schools	Directory of Post-Secondary Environmental Education	05/I 05/D
Manpower	Education		
Environmental Engineering	Ecology		
Environmental Health	Labor Force		
Environmental Education	Employment		
Environmental Protection	Environmental Sciences		
Pollution Control	Environment		
Instruction	Refuse Disposal		

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INTRODUCTORY NOTE

The National Environmental/Energy Workforce Assessment, Phase III, was conducted by National Field Research Center, Inc., with main offices in Iowa City, Iowa. The following personnel have had primary responsibility for the development of the project reports.

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The volumes of post-secondary environmental and energy programs were developed under the auspices and guidance of the U.S. Environmental Protection Agency, by the National Field Research Center, Inc. as part of the NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT, PHASE III. Sincere appreciation is extended to the many individuals and institutions who assisted in the identification and description of the programs, thus generously contributing to the success of this national project. Of particular importance are those individuals identified as contact persons in the program entries.

A special word of appreciation is extended to Mr. J. Donald Cook, Chief, Workforce Coordination Team, U.S. Environmental Protection Agency, Washington, D.C., and to the Manpower Officers and Workforce Coordinators from each of the U.S. Environmental Protection Agency Regional Offices.

PREFACE

This volume includes all identified post-secondary education and/or training programs which have been selected as pertinent to one media-specific area (i.e., air, wastewater, etc.). For ease of handling, the programs are presented in alphabetical order according to the name of the institution. The Appendix, however, presents a listing of the institutions by state, with reference to page numbers.

This portion of the NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT, Phase III, was conducted for the U.S. Environmental Protection Agency, by the National Field Research Center, Inc. with offices located in Iowa City, Iowa; Atlanta, Georgia; Denver, Colorado; and Washington, D.C.

FOREWORD

Information for this portion of the NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT, Phase III, was compiled through extensive review of catalogues from post-secondary education institutions listed in Post-Secondary Education, Education Directory, Colleges & Universities, 1976-77. All program entries were sent to the institutions for review and correction. In most cases, the program entries were returned after being reviewed. Those entries which were not returned have been indicated by an asterisk in front of the program title.

This twelve-volume report contains program entries from junior colleges, vocational/technical training institutes, community colleges, four-year colleges, and universities, as well as other training institutions. Programs are representative of all levels, from academic certification through doctoral degrees. The environmental pollution control areas of air, noise, pesticides, potable water, radiation, solid waste, wastewater and energy were surveyed. In addition, some programs which were not readily categorized

into media-specific areas (i.e., radiation, air, etc.) or which represented multiple media areas in curricula content, have been presented under the title of composite.

Readers are advised that material from the Acknowledgement through the Project Methodology is identical in all twelve program volumes. The reason for such duplication rests with the division of volumes into media specific areas, which increases probability that individuals will only read a given volume of special interest.

Readers are further advised that the purpose of these volumes is to point the direction for further information. Courses, programs and individuals are all subject to change over a given period of time. The inclusion of a specific program does not assure that the program is conducted every year nor does it assure that graduates meet specialized occupational requirements. Readers with specific questions should correspond directly with contact persons.

PROJECT BACKGROUND

The NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT, conducted by the National Field Research Center under the direction of the U.S. Environmental Protection Agency, is an effort to meet the national concern for the preservation and conservation of our country's resources. The project was developed as a multi-phase direct inquiry into the availability and readiness of our environmental workforce.

In keeping with the objective of the assessment, this national effort was directed at environmental/energy workforce requirements, national environmental education preparedness, and the functional relationship between the two.

Phase I of the NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT focused upon the development of "workforce demand projections" through 1982 for all public environmental agencies. This on-site assessment, which was carried out in all 50 states, Puerto Rico and the Virgin Islands, culminated in a numerical profile of the growth patterns and workforce needs at national and state levels. Stratification of the overall definition of "environmental occupation" into seven

distinct vocational areas enhanced even further the applicability of the results. In addition to this public sector workforce assessment, Phase I included an overview analysis of private sector needs and a brief review of selected environmental educational programs.

Phase II of the NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT was structured around an intensive on-site inventory of representative environmental educational offerings on a national scale. The primary objective of this portion of the project was to collect and aggregate data on training and educational programs in both the post-secondary education field and in the private sector and to do so by environmental area. Specifically, the study was designed to provide an overview of environmentally related post-secondary education programs, their program structures, representative course offerings, employment history of the graduates, and the faculty structures. Additionally, information was collected on program requirements and program projections regarding faculty and students.

Phase III of the NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT was completed in mid-1979. In an effort to draw together the relationship between Phase I and Phase II

of the project, several major areas were selected and monographs developed. In an effort to assist Federal and State planners, an environmental/energy manpower bibliography was developed and annotated. A final portion of the Phase III involved the identification of all environmental/energy post-secondary education programs as compared to the Phase I and Phase II which presented representative programs. This compendium of post-secondary environmental/energy programs was presented in media-specific volumes (i.e., Air, Potable Water, Solid Waste, etc.). While more extensive research may be advisable, it is anticipated that the NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT in its entirety represents the most comprehensive research effort to date regarding environmental/energy workforce requirements and the educational community's ability to meet these needs.

PROJECT METHODOLOGY

The NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT, Phase III, includes several components, one of which is made up of the directories of post-secondary environmental/ energy programs. Utilizing the Post-Secondary Education, Education Directory, Colleges and Universities, 1976-77, requests were made of the 3,075 institutions and in addition any new institutions which could be identified. All environmental programs were categorized according to media areas, i.e., air, water, radiation, etc. The program entry information was sent to the contact person for corrections, deletions and general review. The contact persons were requested to return the reviewed information to project personnel. In the majority of cases, the information was returned by the institutions. Those program entries which were not returned have been indicated with an asterisk in front of the program title.

In total, 1,359 programs are presented in these volumes. All 50 states, the District of Columbia, Puerto Rico and the Virgin Islands are represented in the program entries. The introductions of each

volume present the details of selection criteria, geographic location, etc., of the programs presented in that specific environmental area.

The directories have been prepared by media specific area. The volumes which make up this portion of the project are:

* AIR
* NOISE
* PESTICIDES & TOXICOLOGY
* POTABLE WATER
* WASTEWATER
* WATER/WASTEWATER
* RADIATION
* SOLID WASTE
* ENERGY
* COMPOSITE: Environmental Engineering/Technology
* COMPOSITE: Environmental Science/Health
* COMPOSITE: Environmental Studies

INTRODUCTION

There are very few solid waste management programs currently being conducted in the United States. There are individual course offerings available at approximately 74 institutions. But the responsibility of this segment of the NATIONAL ENVIRONMENTAL/ENERGY WORKFORCE ASSESSMENT, Phase III, was to identify and to compile a directory of environmental programs, not individual course offerings. [1]

The criteria utilized for selection of an institution's program in the area of solid waste management were as follows: (a) a total program defined in the catalogue as such; (b) a dominant sequence, consisting of two or more courses; and, (c) a program which offered one to three courses as electives within the requirements. It became obvious that the environmental area of solid waste management did not lend itself to the same degree of

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[1] For a comprehensive listing of post-secondary institutions offering training in the area of solid waste management and/or resource conservation and recovery, the reader is encouraged to refer to "An Analytic Response to Section 7007 (c) of the Resource Conservation and Recovery Act of 1976", the National Field Research Center, Inc., 1979.

categorization as other media areas. This may be attributed to the fact that solid waste management has not received the emphasis that, for example, air or water pollution control has received nationwide. In addition, there has been a sharp decrease in education/training monies allocated to this environmental area.

Table I represents the number and range of degrees represented by the program entries in this volume.

TABLE I

SOLID WASTE MANAGEMENT PROGRAMS

Number and Types of Degrees

Degree Level	No. of Programs	% of Total
Certificate	1	11.1%
One-Year	0	0.0%
Two-Year	0	0.0%
Four-Year	2	22.2%
Four-Year; Graduate	2	22.2%
Graduate	4	44.5%
TOTAL	9	100.0%

As illustrated in Table I, the majority of the programs (67%) are being offered at the graduate level. This tends to substantiate the fact that there is currently very little undergraduate education/training available in the United States today, in the area of solid waste management.

The nine program entries presented herein represent seven states. Six programs are located in five northeastern states, while three programs are located in two southeastern states. All nine programs are being conducted in institutions which offer bachelor and graduate degrees. In addition, all nine program entries included in this volume, were reviewed by institution personnel and returned to project staff.

The following program entries are presented in alphabetical order according to institution name. For a listing of programs by state location, the reader is referred to the Appendix.

PROGRAMS, ALPHABETIZED BY INSTITUTION

DUKE UNIVERSITY

Durham, North Carolina 27706 Catalog Year **1977**

contact person:
Dr. Aleksander S. Vesić, Dean
School of Engineering
(919) 684-2434

program title: **Resource Recovery Engineering**
department: **Civil Engineering**
degree: **Graduate**
comments: **Resource Recovery Engineering consists of a sequence of three courses.**

HOFSTRA UNIVERSITY

Hempstead, New York 11550 Catalog Year **1977-78**

contact person:
Dr. Ronald J. Alvarez, Director
Continuing Engineering Education
(516) 560-3377

program title: **Solid Waste Management**
emphasis: **To upgrade the skills of personnel working in the field and provide information and training in new and developing technologies**
department: **Continuing Engineering Education**
degree: **Certificate**
comments: **Areas covered include incineratory technology, sanitary landfill and resource recovery.**

OHIO STATE UNIVERSITY

N 470 Hitchcock Hall
2070 Neil Avenue
Columbus, Ohio 43210

Catalog Year
1977-78

contact person:
Dr. Otis J. Sproul, Chairperson
Department of Civil Engineering
(614) 422-2771

program title **Solid Waste**
department: **Civil Engineering**
degree: **Graduate**

UNIVERSITY OF IOWA

Iowa City, Iowa 52242

Catalog Year
1976-78

contact person:
Dr. Richard R. Dague, Chairperson
Environmental Engineering
(319) 353-3388

program title: **Solid Waste**
department: **Environmental Sciences**
degree: **4 year**

UNIVERSITY OF MICHIGAN

College of Engineering
Ann Arbor, Michigan 48109

Catalog Year
1978

contact person:
Dr. Eugene A. Glysson
Professor of Civil Engineering
(313) 764-8495

program title: **Solid Waste**
department: **Civil Engineering**
degree: **Graduate**

UNIVERSITY OF TENNESSEE

Knoxville, Tennessee 37916

Catalog Year
1976-77

contact person:
Dr. W. L. Grecco, Head
Civil Engineering Department
(615) 974-2503

program title: **Environmental Engineering (Solid Waste Management)**
department: **Civil Engineering**
degree: **4 year**
Graduate

UNIVERSITY OF WISCONSIN AT GREEN BAY

Green Bay, Wisconsin 54302

Catalog Year
1975-77

contact person:
Dr. Charles Rhyner
Dr. Leander Schwartz
Professors
(414) 465-2371

program title: **Waste Management & Resource Recovery**
department: **College of Environmental Science**
degree: **Graduate**

UNIVERSITY OF WISCONSIN AT MADISON

2205 Engineering Building
Madison, Wisconsin 53706

Catalog Year
1976

contact person:
Dr. William Edward Saul, Chairperson
Civil & Environmental Engineering
(608) 262-3542

program title: **Solid Waste**
department: **Civil & Environmental Engineering**
degree: **4 year**

VANDERBILT UNIVERSITY

Nashville, Tennessee 37240

Catalog Year
1977-78

contact person:
Dr. Karl B. Schnelle, Jr., Chairperson
Environmental Engineering and Policy Management
(615) 322-4757

program title: **Environmental and Water Resources Engineering/Environmental Science Science (Solid Waste)**
department: **Environmental Engineering and Policy Management**
degree: **4 year**
Graduate

APPENDIX
Programs, Listed by State

STATE	INSTITUTION	PAGE
IOWA	University of Iowa	10
MICHIGAN	University of Michigan	11
NEW YORK	Hofstra University	9
NORTH CAROLINA	Duke University	9
OHIO	Ohio State University	10
TENNESSEE	University of Tennessee	11
	Vanderbilt University	13
WISCONSIN	University of Wisconsin at Green Bay	12
	University of Wisconsin at Madison	12